



Loading the soft-sided container.



INEEL

Technical Demonstration Summary Sheet

SOFT-SIDED WASTE PACKAGING SYSTEM

THE NEED

The Idaho National Engineering and Environmental Laboratory (INEEL) historically packages and disposes of low-level waste (LLW) in rigid wood (2×4×8 ft) and metal boxes (4×3×8 ft), which cost \$566 and \$750, respectively. Decontamination and decommissioning (D&D) of facilities generates significant quantities of LLW debris. Disposal containers that are more volumetrically efficient, more cost effective, and easier to use are needed.

THE TECHNOLOGY

The Transport Plastics Inc. Lift-Liner™ soft-sided waste packaging system includes a 25-mil woven outer polypropylene fabric shell with a 2-mil water resistant coating and a 45-mil double layer polypropylene inner liner. The outer shell is equipped with 18 lifting straps made of 2-inch polyester seat belt webbing material. The containers meet the U.S. Department of Transportation requirements for transport of low specific activity and surface contaminated objects. The system also includes a loading frame used to support the shell and inner liner during loading and a lifting/spreader bar. The lifting/spreader bar attaches to the lifting straps for hoisting the container from the loading frame onto a transport vehicle. A small forklift can move the empty loading frame and lifting/spreader bar. The empty bags are light and compact enough to move by hand. Each container has a capacity of 260 ft³ and holds up to 24,000 lbs. This is about three times the weight and volume capacity of a metal waste box. There is a one-time cost of approximately \$7,000 for the loading frame and lifting/spreader bar. The cost of the soft-sided containers is \$380 per bag. This results in savings of about \$1,800 in container cost for each bag filled versus filling three metal boxes or four wooden boxes.

THE DEMONSTRATION

The INEEL demonstrated the Lift-Liner™ system soft-sided waste containers in August 1998, November 1998, and January 1999 as part of the Large Scale Demonstration and Deployment Project, which is funded by the D&D Focus Area at the U.S. Department of Energy's Federal Energy Technology Center. The demonstration took place at the Central Facilities Area Sewage Treatment Plant and Auxiliary Reactor Area-I D&D projects. Waste debris packaged during the demonstration included broken concrete, cinder block, metal, piping, wood, gravel, soil, and miscellaneous items.

THE RESULTS

The soft-sided containers were easy to use. The bags worked best with a layer of contaminated soil or gravel in the bottom before loading large debris into the container. The waste container integrity held up to all types of debris including large concrete slabs with protruding rebar. Waste sizing and preparation activities were essentially equivalent for both the soft-sided containers and the baseline wooden boxes. However, the soft-sided containers did allow for larger pieces of debris to be loaded into them and under certain conditions could result in less waste preparation activities. The much greater capacity of the soft-sided containers allowed for continuous container loading without changing containers as frequently. Typically three workers are required to setup and fill a soft-

sided container, which is the same as that required for a waste box. The use of the soft-sided containers was well received by the D&D workers and the onsite LLW burial ground. D&D operations at the INEEL are currently using the soft-sided waste bags as their waste container of choice for LLW debris.

BENEFITS

- \$1,800 waste container cost savings per bag
- Easier loading and accepts larger debris
- Three times greater capacity
- Reduces void spaces and landfill subsidence.



Lifting a full waste container.

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<http://id.inel.gov/lstdp>